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AGRICULTURAL MEMORANDUM NO 361

Weather tendencies in West Wales

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1. Introduction

At a recent meeting of the NAAS Council for Wales a short account was given of general weather tendencies as background for a discussion on their implications for farming.

The meteorological data on which this account was based is presented in summary form, followed by notes on the agricultural implications.

2. Data and methods

2.1 The monthly and annual rainfall and temperature data for Aberystwyth (Frongoch) were used. These cover the period 1925-68 and they were smoothed by computing 10 year moving averages for each month ie 1925-34, 1926-35 ..... 1959-68.

2.2 These monthly averages were plotted on a time scale and the curves examined for tendencies. No statistical tests were applied and there is an element of subjectivity in determining the tendencies, but this affects only marginal tendencies of no practical importance.

2.3 When the results for individual months suggested the likelihood that a given tendency persisted for 2 or more months, the monthly data were combined and the tendencies for those selected combinations of months were examined.

3. Results

3.1 The results are presented in Tables I and II and the following notes of explanation are given.

3.2 The overall tendencies are general comparisons between the first and second halves of the period 1925-68 ie between 1925-34 to 1942-51, and 1943-52 to 1959-68.

3.3 The short-term tendencies deal with the more recent years and are not necessarily the same as the overall tendencies.

3.4 Under short-term tendencies, indications are given where possible of the approximate periods and magnitudes. For example, the short-term tendency towards lower temperatures over the year as a whole has persisted since 1952-61 and average annual temperature has fallen by about 0.6°F over that period. Annual rainfall has shown a tendency to decline from about 1945-54, by about 3 inches.

3.5 Where appropriate, information is given on the percentage of annual rainfall which falls in a given month ie the isomeric values based on

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10-year means. For example, about 11% of the annual rainfall fell in January during 1936-45 but only about 8% in 1959-68.

3.6 Tendencies are shown as positive or negative. Positive tendencies show that it is becoming warmer, or wetter.

3.7 All temperatures are in degrees Fahrenheit.

4. Discussion

The main tendencies are as follows:

4.1 Towards drier weather in the first 3 months of the year since the late thirties, combined with a less marked tendency to colder weather since the late forties or early fifties.

4.2 Towards drier weather from the late forties or early fifties during July to August. This continues beyond August to cover July to September, July to October and July to November.

Also, during the period July to August it has become cooler since the early forties.

4.3 Towards cooler weather in November-December since the early fifties. This can be combined with a less marked tendency during January to March (see 4.1), even extended into April (see Table I).

5. Agricultural implications

5.1 The projection of tendencies into the future is hazardous. The following notes suggest how farming may be affected if the tendencies are not greatly changed.

5.2 Colder and drier winters imply more Continental weather, at least in some years, increasing both the risk of snow and of periods of hard frost without snow. This may well lead to difficulties in hill areas, and more winter fodder may be necessary. There will be a greater need for grass conservation or, alternatively, more concentrates.

5.3 Any intensification of cold winters could presumably lead to changes in the dates of lambing and calving.

5.4 A short-term tendency to later springs is clear in the results for March and April (Table I). This, following on the colder winters, suggests a shortage of early bite. It also points to the possibility that potato planting could be held up in Pembrokeshire, or that the crop may be held back. However, this does not imply that the west of the British Isles is losing its relative earliness.

5.5 June shows a tendency to warmer weather but July and August are both cooler and drier (4.2) and this tendency to dryness continues into the autumn. While there may be a slight slowing of growth late in the season, the relative dryness in late summer could be an advantage in some areas.

5.6 The more open autumns suggested by the warmer Octobers and drier Novembers (although colder) seem beneficial.

6. Conclusions

A general tendency towards cooler and drier weather is evident since some time in the forties or early fifties. Only February, June and October have become warmer since then and only April has become wetter.

One must think in terms of generally more open autumns followed by harder winters and later springs.

7. Acknowledgments

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Any comments or suggestions on this paper should be sent to the authors.

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Table I

Overall and short-term tendencies shown by temperature and rainfall data from Aberystwyth (Frongoch) 1925-68.

		Temperature	Rainfall
Year	Overall	None	Irregular
	Short-term	NEGATIVE since early fifties 0.6° [1952]	NEGATIVE since mid-forties 3 in. [1945]
Dec.	Overall	None	None
	Short-term	NEGATIVE since late forties 2.6° [1947]	None
Jan.	Overall	None	NEGATIVE
	Short-term	NEGATIVE since late forties 1.7° [1948]	NEGATIVE since late thirties 1.3 in. [1936] 11% [1936] to 8%
Feb.	Overall	NEGATIVE	NEGATIVE
	Short-term	POSITIVE	NEGATIVE since late thirties 1.3 in. [1937] 8% [1937] to 5%
Mar.	Overall	POSITIVE	POSITIVE
	Short-term	NEGATIVE since late forties 1.5° [1948]	NEGATIVE since late forties 0.9 in. [1947] 7% [1947] to 5%
Apr.	Overall	None	POSITIVE
	Short-term	NEGATIVE (irregular) 1.3° [1940]	POSITIVE since early fifties 0.9 in. [1951] c. 5% [1951] to c. 8%
May	Overall	POSITIVE	None
	Short-term	Irregular since forties	None
June	Overall	None	None
	Short-term	POSITIVE since early forties 0.8° [1943]	None
July	Overall	None	None
	Short-term	NEGATIVE since late forties 1.2° [1949]	NEGATIVE (slight) since early fifties 0.5 in. [1951]
Aug.	Overall	NEGATIVE	None
	Short-term	NEGATIVE since early thirties 1.3° [1930]	NEGATIVE since late forties 1.7 in. [1948] >11% [1948] to < 8%

Table I (contd.)

		Temperature	Rainfall
Sept.	Overall	None	POSITIVE
	Short-term	None	NEGATIVE since late forties 1.1 in. [1949] c. 11.5% [1949] to c. 9.5%
Oct.	Overall	POSITIVE 1.7° [1926]	NEGATIVE (irregular)
	Short-term	POSITIVE (irregular) since mid-forties	None
Nov.	Overall	None	None
	Short-term	NEGATIVE (irregular) since mid-forties 1.3° [1945]	NEGATIVE since mid-forties 0.8 in. [1946]

Negative = colder Negative = drier

Table II

Overall and short-term tendencies shown by temperature and rainfall data from Aberystwyth (Frongoch) 1925-68, using selected combinations of months.

		Temperature	Rainfall
Jan. to Mar.	Overall	None	NEGATIVE
	Short-term	NEGATIVE (irregular) since late forties	NEGATIVE since late thirties, average 2.4 in. per year
July to Aug.	Overall	NEGATIVE	None
	Short-term	NEGATIVE since early forties 1°F [1943]	NEGATIVE 1.8 in. [1950]
July to Nov.			Overall: None
			Short-term: NEGATIVE since late forties 3.4 in. [1949]
Nov. to Dec.	Overall	None	
	Short-term	NEGATIVE since early fifties 2°F [1951]	
Nov. to Apr.	Overall	None	
	Short-term	NEGATIVE since early fifties c. 1° [1952]	

Negative = colder Negative = drier

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